



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,248	08/21/2001	Byung J. Choi	21554-027001 / PA1909V07	6502
26201	7590	02/21/2008	EXAMINER	
FISH & RICHARDSON P.C. P.O BOX 1022 Minneapolis, MN 55440-1022			VARGOT, MATHIEU D	
			ART UNIT	PAPER NUMBER
			1791	
			MAIL DATE	DELIVERY MODE
			02/21/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

09/934,248

**Applicant(s)**

CHOI ET AL.

**Examiner**

Mathieu D. Vargot

**Art Unit**

1791

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6,8,11-16,31,32,35,37-42,45-49,212-221 and 223-225 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8,11-16,31,32,35,37-42,45-49,212-221 and 223-225 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                     |                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____                                                        | 6) <input type="checkbox"/> Other: _____                          |

1. Upon closer review of the Brief submitted October 24, 2007 and Supplemental Brief submitted November 13, 2007, it is recognized that a great many dependent claims argued separately by applicant were not directly addressed in any rejections. Hence, the prosecution of the case has been reopened. Note that upon a subsequent filing of an Appeal Brief, dependent claims argued separately need to be broken into separate headings in the Arguments section. While this has not been done, it is moot at this point since the prosecution is being reopened.

2. Claims 3, 38 and 219 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims are indefinite in failing to further limit the apparatus in a structural sense.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 6, 8, 11-16, 31, 32, 35, 37-42, 45-49, 212-221 and 223-225 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Stewart article "A Platform With Six Degrees of Freedom" in view of the Hogan article "Impedance Control: An Approach to Manipulation".

The primary reference to Stewart shows an apparatus for positioning an object in at least one plane comprising a holding member—the platform—configured to

hold the object—the pilot—and a positioning system including a linkage coupled to the platform defining a first three-axis (flexure) joint thereat, with elongated members—legs—coupling the first joint to a second joint (on the ground, the two-axis joint). Essentially, the article to Stewart fails to teach that the elongated members are made up of a pair of members that move as set forth in the instant claims. Hogan (see Figs. 2a and 3a) shows a manipulating system that would include a linkage that would interact with the environment (page 3, bottom left, last two paragraphs) defining a first joint thereat, the first joint being coupled to a second joint (that against the wall in Fig. 2a) through a plurality (pair, as set forth in instant claim 2) of elongated members and another joint, with the plurality of elongated members being coupled to the another joint to move “at substantially the same rate and in opposite directions to facilitate movement of” the particular environmental interaction desired along first and second transverse axes. It would have been obvious to one of ordinary skill in the art to modify the apparatus as shown in Stewart with the linked, pair of elongated members as taught in Hogan for added flexibility in moving the platform. Concerning instant claim 3, when the structure of Stewart is set up, it would obviously be subjected to a pre-load. Certainly, preloading a structure as it is assembled is nothing but conventional in the art to ensure that it does not fail upon later usage. The combination as applied would allow for the elongated members to allow rotation through at least a 40 degree range of motion as set forth in instant claims 5 and 6. In fact, it would appear that the combination would allow for a much greater

degree range of motion—possibly around 90 degrees. Given that Stewart shows three legs supporting the platform, it would be logical to provide three linkages as taught in the combination of Stewart and Hogan, and hence instant claim 8 is obvious in the combination as applied. Stewart uses hydraulic jacks as motive devices coupled to the holding member as required in instant claim 11. Magnetic servomotors (instant claim 12) are conventional in the art and would have been obvious machine elements to replace the hydraulic jacks to facilitate control over the motion of the holding member/platform. Concerning instant claims 13 and 14, it is submitted that such constitutes an intended use that the structure of the prior art would be inherently capable of performing. Hence, while there is no disclosure of using the device of Stewart or Hogan to hold a semiconductor or to be a wafer chuck, one of ordinary skill would realize that such would have been an obvious use for the structures shown therein given a scaling down in size of the apparatus. The elongated members of the plurality of elongated members are shown in Hogan as having a common length—see Fig. 2a and 3a in the reference. It is submitted obvious that the linkage would be configured as set forth in instant claim 16 to ensure a fluid, accurate motion, given that kinematic singularities would be undesirable motions.

Instant claim 31 is submitted to be obvious over the art applied generally for reasons of record already set forth. As already noted, first and second sets of flexure linkages is obvious over the references applied and surely first and second motive devices would also be obvious. Instant claim 212 is also

Art Unit: 1791

considered to be obvious for reasons already advanced. Concerning the dependent claims, claims 32, 214 and 216 would be rejected for reasons already given for claim 15; claim 35 for reasons given for claim 16; claims 38 and 219, the same as for claim 3; claims 39-41, 217 and 218, the same as for claim 6—also, for claims 39 and 41, 20 degrees is less than 40 degrees; claim 42, the same as for claim 5; claims 45-47 and 223, the same as for claim 12; claims 48 and 224, the same as for claim 13; claims 49 and 225, the same as for claim 14; and claim 213, the same as for claim 8. The six degrees of freedom imparted to the motion of the platform in Stewart would allow the additional linkages to move the platform along an axis transverse to a first axis as recited in instant claim 215. Finally, the linkage of Hogan would allow the pair of elongated members to rotate at substantially the same rate away from each other as set forth in instant claims 220 and 221 for the first linkage and additional linkage.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mathieu D. Vargot whose telephone number is 571 272-1211. The examiner can normally be reached on Mon-Fri from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson, can be reached on 571 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 1791

published applications may be obtained from either Private PAIR or Public PAIR.

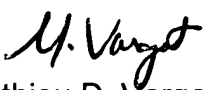
Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

M. Vargot  
February 18, 2008

  
Mathieu D. Vargot  
Primary Examiner  
Art Unit 1791

2/18/08